What is claimed is:

1. An object detection apparatus for detecting a target object in an image, comprising:

an image input portion for entering a shot image that is taken by a camera;

a plurality of feature detection portions for detecting features of the shot image by using different methods;

a shooting condition obtaining portion for obtaining information indicating conditions for shooting by the camera;

a reliability calculation portion for calculating reliability of the feature that is detected by each of the feature detection portions in the conditions indicated by the information obtained by the shooting condition obtaining portion; and

an object detection portion for detecting the object in the shot image in accordance with the features detected respectively by one or more of the plural feature detection portions from the shot image and the reliability of the features calculated by the reliability calculation portion.

2. The object detection apparatus according to claim 1, wherein the feature detection portion detects the feature as a feature quantity, and the object detection portion detects the object in accordance with the feature quantity of each feature that has a weight corresponding to reliability of each feature.

3. The object detection apparatus according to

claim 2, wherein

the feature detection portion delivers a feature image that indicates a degree of indicating the feature in each pixel of the shot image as a result of detecting the feature quantity of the shot image, and

the object detection portion detects the object in accordance with the feature image.

4. The object detection apparatus according to claim 3, further comprising

a composite image generation portion for generating a composite image by adding values of corresponding pixels of plural feature images, wherein

the feature detection portion delivers the feature image for each of the plural sorts of features,

the composite image generation portion generates the composite image in accordance with each of the plural sorts of feature images, and

the object detection portion detects the object in accordance with the composite image generated by the composite image generation portion.

5. The object detection apparatus according to claim 4, wherein the object detection portion detects a position of the object in accordance with a pixel having a pixel value larger than a predetermined value and pixel values of pixels surrounding said pixel among the pixels of the composite image.

6. The object detection apparatus according to claim 1, further comprising a reliability memory portion for memorizing the reliability of the feature calculated by the reliability calculation portion, wherein

the reliability calculation portion calculates the reliability of the feature at a predetermined timing, and

the object detection portion detects the object in the shot image in accordance with the latest feature memorized in the reliability memory portion.

7. The object detection apparatus according to claim 1, further comprising a shooting condition memory portion for memorizing information that indicates the conditions obtained by the shooting condition obtaining portion, wherein

the reliability calculation portion performs a process for calculating the reliability if a difference between the information indicating the conditions obtained by the shooting condition obtaining portion and the information that is memorized in the shooting condition memory portion and indicates the conditions in the past is larger than a predetermined quantity or a predetermined ratio.

8. The object detection apparatus according to claim 1, wherein

the object is a human body, and

the feature detection portion is a section for calculating a matching degree between the shot image and a template having a semiellipse shape for obtaining the feature, a section for detecting a likelihood of a flesh color in each of sectioned areas of a pixel plane of the shot image for obtaining the feature, a section for detecting a likelihood of a hair color in the area of the shot image for obtaining the feature, or a section for calculating a matching degree between the shot image and a

template having shapes of shoulders for obtaining the feature.

9. The object detection apparatus according to claim 1, wherein the shooting condition obtaining portion obtains information about setting of the camera, information about a state of a shooting area of the camera, or information about an object of which the camera takes an image as the information that indicates the conditions.

10. An object detection apparatus for detecting a target object in an image, comprising:

an image input portion for entering a shot image that is taken by a camera;

a plurality of feature detection portions for detecting features of the shot image by using different methods;

a shooting condition obtaining portion for obtaining information indicating conditions for shooting by the camera;

a reliability calculation portion for calculating reliability of the feature that is detected by each of the feature detection portions in the conditions;

an operation method decision portion for deciding an operation method for detecting the object in accordance with the reliability calculated by the reliability calculation portion, of each feature detected by each of the feature detection portions; and

an object detection portion for detecting the object in the shot image in accordance with the features detected respectively by one or more of the plural feature detection portions and the operation method decided by the

operation method decision portion.

11. The object detection apparatus according to claim 10, wherein

the feature detection portion delivers a feature image that indicates a degree of indicating the feature in each pixel of the shot image as a result of detecting the feature quantity of the shot image, and

the object detection portion detects the object in accordance with the feature image.

12. The object detection apparatus according to claim 11, further comprising

a composite image generation portion for generating a composite image of plural feature images by performing an operation in accordance with the operation method decided by the operation method decision portion, wherein

the feature detection portion delivers the feature image for each of the plural sorts of features,

the composite image generation portion generates the composite image in accordance with each of the plural sorts of feature images, and

the object detection portion detects the object in accordance with the composite image generated by the composite image generation portion.

13. The object detection apparatus according to claim 12, wherein the object detection portion detects a position of the object in accordance with a pixel having a pixel value larger than a predetermined value and pixel values of pixels surrounding said pixel among the pixels of the composite image.

14. The object detection apparatus according to

claim 10, further comprising a shooting condition memory portion for memorizing information that indicates the conditions obtained by the shooting condition obtaining portion, wherein

the reliability calculation portion performs a process for calculating the reliability if a difference between the information indicating the conditions obtained by the shooting condition obtaining portion and the information that is memorized in the shooting condition memory portion and indicates the conditions in the past is larger than a predetermined quantity or a predetermined ratio.

15. The object detection apparatus according to claim 10, wherein the shooting condition obtaining portion obtains information about setting of the camera, information about a state of a shooting area of the camera, or information about an object of which the camera takes an image as the information that indicates the conditions.

16. An object detection method for detecting a target object in an image, comprising:

a step of entering a shot image that is taken by a camera;

a step of detecting features of the shot image by using different feature detection methods;

a step of obtaining information indicating conditions for shooting by the camera;

a step of calculating reliability of the feature that is detected by each of the feature detection methods in the conditions indicated by the obtained information; and

a step of detecting the object in the shot image in accordance with the features detected respectively by one or more of the plural feature detection methods from the shot image and reliability of the features.

17. The object detection method according to claim 16, wherein

the step of detecting the feature includes detecting the feature as a feature quantity, and

the step of detecting the object includes detecting the object in accordance with the feature quantity of each feature that has a weight corresponding to reliability of each feature.

18. The object detection method according to claim 16, further comprising a step of deciding an operation method for detecting the object in accordance with reliability of each of the features, wherein

the step of detecting the object includes detecting the object in the shot image in accordance with the operation method decided on the basis of reliability of the feature.

19. A computer program product comprising a computer-readable medium and computer program recorded on the computer-readable medium for performing the steps of

entering a shot image that is taken by a camera;

detecting features of the shot image by using different feature detection methods;

obtaining information indicating conditions for shooting by the camera;

calculating reliability of the feature that is detected by each of the feature detection methods in the

conditions indicated by the obtained information; and

detecting the object in the shot image in accordance with the features detected respectively by one or more of the plural feature detection methods from the shot image and the reliability of the features.

20. A monitoring system comprising:

a video camera for taking an image; and

an object detection apparatus for detecting a target object in the image taken by the video camera, including

an image input portion for entering a shot image that is taken by the video camera,

a plurality of feature detection portions for detecting features of the shot image by using different methods,

a shooting condition obtaining portion for obtaining information indicating conditions for shooting by the video camera,

a reliability calculation portion for calculating reliability of the feature that is detected by each of the feature detection portions in the conditions indicated by the information obtained by the shooting condition obtaining portion, and

an object detection portion for detecting the object in the shot image in accordance with the features detected respectively by one or more of the plural feature detection portions from the shot image and the reliability of the features calculated by the reliability calculation portion.

21. The monitoring system according to claim 20, further comprising an operation method decision portion

for deciding an operation method for detecting the object in accordance with the reliability calculated by the reliability calculation portion, of each feature detected by each of the feature detection portions, wherein

the object detection portion detects the object in the shot image in accordance the operation method determined on the basis of reliability of the feature.

22. The monitoring system according to claim 20, further comprising an image display device for display an image area of the object detected by the object detection apparatus after enlarging the image area within the image taken by the video camera.

23. The monitoring system according to claim 20, further comprising a recording device for recording the image if the object is detected in the image taken by the video camera.